We claim:

1. An exercise device comprising (a) a frame defining a transverse axis, (b) first and second foot supports operably associated with the frame for traveling in a forward and backward direction along a closed loop path relative to the transverse axis wherein the closed loop path defines a stride length, (c) a means effective for sensing the direction of travel of the foot supports along the closed loop path as between the forward and the backward directions, and (d) a means for automatically adjusting the stride length of the closed loop path traveled by the foot supports based upon the sensed direction of travel of the foot supports.

2. The exercise device of claim 1 wherein the closed loop path is an elliptical path.

3. The exercise device of claim 1 wherein (i) the foot supports are operably connected to the frame through a connecting system having at least two members pivotally attached to one another at a pivot point, and (ii) the means for automatically adjusting the stride length of the closed loop path traveled by the foot supports, comprises (A) a means for adjusting the pivot point along the length of at least one member of the connecting system, and (B) a control unit in communication with the direction sensor and the stride length adjustment means for receiving a signal from the sensor indicting the direction of travel of the foot supports along the closed loop path and automatically adjusting the pivot point along the length of at least one member of the connecting system based upon the received signal.

4. The exercise device of claim 3 wherein the connecting system includes (i) first and second foot links each having a first end and supporting one of the foot supports, (ii) first and second connector links each having a first end and a second end, with each connector link pivotally attached proximate the first end to one of the foot links proximate the first end of the foot link at a foot link pivot point, (iii) first and second rocker arms each having a first end and a second end, with each rocker arm pivotally attached proximate the first end to the frame and pivotally attached proximate the second end to one of the connector links proximate the second end of the connector link at a rocker pivot point, (iv) a drive shaft rotatably attached to the frame, and (v) first and second crank arms having first and second ends, with each crank arm attached

proximate the first end to the drive shaft and pivotally attached proximate the second end to the connector link at a crank pivot point which is positioned intermediate the foot support pivot point and the rocker pivot point.

5. The exercise device of claim 1 further comprising (i) a guide rail, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion supported by the guide rail for permitting longitudinal travel of the second end portion of the foot link along a reciprocating path.

6. The exercise device of claim 5 wherein the guide rail is configured and arranged to impart a linear reciprocating path of travel to the second end portion of the foot links as the foot supports travel along the closed loop path.

7. The exercise device of claim 5 wherein the guide rail is configured and arranged to impart a curved reciprocating path of travel to the second end portion of the foot links along the guide rail.

8. The exercise device of claim 1 further comprising (i) a guide arm pivotally attached to the frame, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion pivotally supported by the guide arm for longitudinal travel of the second end portion of the foot link along an arcuate reciprocating path.

9. The exercise device of claim 5 wherein the extension element is a drive pulley.

10. The exercise device of claim 8 wherein the extension element is a drive pulley.

11. The exercise device of claim 5 wherein the extension element is a crank shaft.

12. The exercise device of claim 8 wherein the extension element is a crank shaft.

13. The exercise device of claim 5 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

14. The exercise device of claim 8 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

15. The exercise device of claim 5 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

16. The exercise device of claim 8 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

17. The exercise device of claim 4 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element via an intermediate linkage system wherein the intermediate linkage system is (i) pivotally attached at a proximal point to the foot link, (ii) pivotally attached at a distal point to the frame, and (iii) pivotally attached to the extension element intermediate the proximal and distal points of attachment.

18. The exercise device of claim 4 wherein (i) the first end of each foot link is longitudinally spaced in a first longitudinal direction from the second end of the foot link, (ii) the second end of each foot link is longitudinally spaced in a second longitudinal direction from the first end of the foot link, and (iii) the foot supports are supported by the foot links at a position longitudinally

spaced in the second longitudinal direction from the point at which the foot links are supported by the guide rail.

19. The exercise device of claim 4 wherein the first end of each foot link travels along a circular path which encompasses the transverse axis.

20. The exercise device of claim 4 wherein the first end of each foot link travels along a non-circular arcuate path relative to the transverse axis.

21. The exercise device of claim 1 wherein the exercise device further comprises (A) right and left longitudinally extending foot links each slidably supporting a foot support and having (1) a first longitudinal end portion pivotally attached to the frame for travel along a first closed loop path about a first transverse axis, and (2) a second longitudinal end portion pivotally attached to the frame for travel along a second closed loop path about a second transverse axis, (B) right and left rocker links each having a first portion operatively connected to a respective foot support and a second portion pivotally mounted on the frame, and (C) right and left drawbars each having a first portion constrained to travel in association with the respective foot link relative to the first and second closed loop paths and a second portion connected to a respective rocker link, wherein the combination of a rocker link and associated drawbar cooperate to transfer and link travel of the foot link along the first and second closed loop paths to longitudinal sliding of the respective foot support along the respective foot link.

22. An exercise device comprising (a) a frame defining a transverse axis, (b) first and second foot supports operably associated with the frame for traveling in a forward and backward direction along a closed loop path relative to the transverse axis wherein the closed loop path defines a stride height, (c) a means effective for sensing the direction of travel of the foot supports along the closed loop path as between the forward and the backward directions, and (d) a means for automatically adjusting the stride height of the closed loop path traveled by the foot supports based upon the sensed direction of travel of the foot supports.

23. The exercise device of claim 22 wherein the closed loop path is an elliptical path.

24. The exercise device of claim 22 wherein (i) the foot supports are operably connected to the frame through a connecting system having at least two members pivotally attached to one another at a pivot point, and (ii) the means for automatically adjusting the stride height of the closed loop path traveled by the foot supports, comprises (A) a means for adjusting the pivot point along the length of at least one member of the connecting system, and (B) a control unit in communication with the direction sensor and the stride height adjustment means for receiving a signal from the sensor indicting the direction of travel of the foot supports along the closed loop path and automatically adjusting the pivot point along the length of at least one member of the connecting system based upon the received signal.

25. The exercise device of claim 22 wherein the connecting system includes (i) first and second foot links each having a first end and supporting one of the foot supports, (ii) first and second connector links each having a first end and a second end, with each connector link pivotally attached proximate the first end to one of the foot links proximate the first end of the foot link at a foot link pivot point, (iii) first and second rocker arms each having a first end and a second end, with each rocker arm pivotally attached proximate the first end to the frame and pivotally attached proximate the second end to one of the connector links proximate the second end of the connector link at a rocker pivot point, (iv) a drive shaft rotatably attached to the frame, and (v) first and second crank arms having first and second ends, with each crank arm attached proximate the first end to the drive shaft and pivotally attached proximate the second end to the connector link at a crank pivot point which is positioned intermediate the foot support pivot point and the rocker pivot point.

26. The exercise device of claim 22 further comprising (i) a guide rail, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion supported by the guide rail for

permitting longitudinal travel of the second end portion of the foot link along a reciprocating path.

27. The exercise device of claim 26 wherein the guide rail is configured and arranged to impart a linear reciprocating path of travel to the second end portion of the foot links as the foot supports travel along the closed loop path.

28. The exercise device of claim 26 wherein the guide rail is configured and arranged to impart a curved reciprocating path of travel to the second end portion of the foot links along the guide rail.

29. The exercise device of claim 26 wherein the means for automatically adjusting the stride height of the closed loop path traveled by the foot supports comprises a means for adjusting the angle of incline of the guide rail.

30. The exercise device of claim 22 further comprising (i) a guide arm pivotally attached to the frame, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion pivotally supported by the guide arm for longitudinal travel of the second end portion of the foot link along an arcuate reciprocating path.

31. The exercise device of claim 30 wherein the means for automatically adjusting the stride height of the closed loop path traveled by the foot supports comprises a means for adjusting the distance between the point at which the guide arm is pivotally attached to the frame and the point at which the guide arm is pivotally attached to the second end portion of each foot link.

32. The exercise device of claim 26 wherein the extension element is a drive pulley.

33. The exercise device of claim 30 wherein the extension element is a drive pulley.

34. The exercise device of claim 26 wherein the extension element is a crank shaft.

35. The exercise device of claim 30 wherein the extension element is a crank shaft.

36. The exercise device of claim 26 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

37. The exercise device of claim 30 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

38. The exercise device of claim 26 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

39. The exercise device of claim 30 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

40. The exercise device of claim 25 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element via an intermediate linkage system wherein the intermediate linkage system is (i) pivotally attached at a proximal point to the foot link, (ii) pivotally attached at a distal point to the frame, and (iii) pivotally attached to the extension element intermediate the proximal and distal points of attachment.

41. The exercise device of claim 25 wherein (i) the first end of each foot link is longitudinal spaced in a first longitudinal direction from the second end of the foot link, (ii) the second end of each foot link is longitudinal spaced in a second longitudinal direction from the first end of the foot link, and (iii) the foot supports are supported by the foot links at a position longitudinally spaced in the second longitudinal direction from the point at which the foot links are supported by the guide rail.

42. The exercise device of claim 25 wherein the first end of each foot link travels along a circular path which encompasses the transverse axis.

43. The exercise device of claim 25 wherein the first end of each foot link travels along a non-circular arcuate path relative to the transverse axis.

44. The exercise device of claim 23 wherein the exercise device further comprises (A) right and left longitudinally extending foot links each slidably supporting a foot support and having (1) a first longitudinal end portion pivotally attached to the frame for travel along a first closed loop path about a first transverse axis, and (2) a second longitudinal end portion pivotally attached to the frame for travel along a second closed loop path about a second transverse axis, (B) right and left rocker links each having a first portion operatively connected to a respective foot support and a second portion pivotally mounted on the frame, and (C) right and left drawbars each having a first portion constrained to travel in association with the respective foot link relative to the first and second closed loop paths and a second portion connected to a respective rocker link, wherein the combination of a rocker link and associated drawbar cooperate to transfer and link travel of the foot link along the first and second closed loop paths to longitudinal sliding of the respective foot support along the respective foot link.

45. An exercise device comprising (a) a frame defining a transverse axis, (b) first and second foot supports operably associated with the frame for traveling in a forward and backward direction along a closed loop path relative to the transverse axis wherein the closed loop path defines a stride length and a stride height, (c) a means effective for sensing the direction of travel of the foot supports along the closed loop path as between the forward and the backward directions, and (d) a means for automatically adjusting the stride length and stride height of the closed loop path traveled by the foot supports based upon the sensed direction of travel of the foot supports.

46. The exercise device of claim 45 wherein the closed loop path is an elliptical path.

47. The exercise device of claim 45 wherein (i) the foot supports are operably connected to the frame through a connecting system having at least two members pivotally attached to one another at a pivot point, and (ii) the means for automatically adjusting the stride length and stride height of the closed loop path traveled by the foot supports, comprises (A) a means for adjusting the pivot point along the length of at least one member of the connecting system, and (B) a control unit in communication with the direction sensor and the stride length and stride height adjustment means for receiving a signal from the sensor indicting the direction of travel of the foot supports along the closed loop path and automatically adjusting the pivot point along the length of at least one member of the connecting system based upon the received signal.

48. The exercise device of claim 45 wherein the connecting system includes (i) first and second foot links each having a first end and supporting one of the foot supports, (ii) first and second connector links each having a first end and a second end, with each connector link pivotally attached proximate the first end to one of the foot links proximate the first end of the foot link at a foot link pivot point, (iii) first and second rocker arms each having a first end and a second end, with each rocker arm pivotally attached proximate the first end to the frame and pivotally attached proximate the second end to one of the connector links proximate the second end of the connector link at a rocker pivot point, (iv) a drive shaft rotatably attached to the frame, and (v) first and second crank arms having first and second ends, with each crank arm attached proximate the first end to the drive shaft and pivotally attached proximate the second end to the connector link at a crank pivot point which is positioned intermediate the foot support pivot point and the rocker pivot point.

49. The exercise device of claim 45 further comprising (i) a guide rail, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion supported by the guide rail for

permitting longitudinal travel of the second end portion of the foot link along a reciprocating path.

50. The exercise device of claim 49 wherein the guide rail is configured and arranged to impart a linear reciprocating path of travel to the second end portion of the foot links as the foot supports travel along the closed loop path.

51. The exercise device of claim 49 wherein the guide rail is configured and arranged to impart a curved reciprocating path of travel to the second end portion of the foot links along the guide rail.

52. The exercise device of claim 49 wherein the means for automatically adjusting the stride length and stride height of the closed loop path traveled by the foot supports comprises a means for adjusting the angle of incline of the guide rail.

53. The exercise device of claim 45 further comprising (i) a guide arm pivotally attached to the frame, (ii) a transversely extending drive shaft rotatably attached to the frame and extending along the transverse axis, (iii) an extension element extending away from the transverse axis and fixedly attached to the drive shaft for unitary rotation with the drive shaft, and (iv) first and second foot links each supporting a foot support and having (A) first and second ends, (B) a first end portion pivotally attached to the extension element at a point spaced from the transverse axis for travel along a closed loop path relative to the transverse axis, and (C) a second end portion pivotally supported by the guide arm for longitudinal travel of the second end portion of the foot link along an arcuate reciprocating path.

54. The exercise device of claim 53 wherein the means for automatically adjusting the stride length and stride height of the closed loop path traveled by the foot supports comprises a means for adjusting the distance between the point at which the guide arm is pivotally attached to the frame and the point at which the guide arm is pivotally attached to the second end portion of each foot link.

55. The exercise device of claim 49 wherein the extension element is a drive pulley.

56. The exercise device of claim 52 wherein the extension element is a drive pulley.

57. The exercise device of claim 49 wherein the extension element is a crank shaft.

58. The exercise device of claim 52 wherein the extension element is a crank shaft.

59. The exercise device of claim 49 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

60. The exercise device of claim 52 wherein the first end portion of each foot link is directly pivotally attached to the extension element.

61. The exercise device of claim 49 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

62. The exercise device of claim 52 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element.

63. The exercise device of claim 48 wherein the first end portion of each foot link is indirectly pivotally attached to the extension element via an intermediate linkage system wherein the intermediate linkage system is (i) pivotally attached at a proximal point to the foot link, (ii) pivotally attached at a distal point to the frame, and (iii) pivotally attached to the extension element intermediate the proximal and distal points of attachment.

64. The exercise device of claim 48 wherein (i) the first end of each foot link is longitudinal spaced in a first longitudinal direction from the second end of the foot link, (ii) the second end of each foot link is longitudinal spaced in a second longitudinal direction from the first end of the foot link, and (iii) the foot supports are supported by the foot links at a position longitudinally

spaced in the second longitudinal direction from the point at which the foot links are supported by the guide rail.

65. The exercise device of claim 48 wherein the first end of each foot link travels along a circular path which encompasses the transverse axis.

66. The exercise device of claim 48 wherein the first end of each foot link travels along a non-circular arcuate path relative to the transverse axis.

67. The exercise device of claim 47 wherein the exercise device further comprises (A) right and left longitudinally extending foot links each slidably supporting a foot support and having (1) a first longitudinal end portion pivotally attached to the frame for travel along a first closed loop path about a first transverse axis, and (2) a second longitudinal end portion pivotally attached to the frame for travel along a second closed loop path about a second transverse axis, (B) right and left rocker links each having a first portion operatively connected to a respective foot support and a second portion pivotally mounted on the frame, and (C) right and left drawbars each having a first portion constrained to travel in association with the respective foot link relative to the first and second closed loop paths and a second portion connected to a respective rocker link, wherein the combination of a rocker link and associated drawbar cooperate to transfer and link travel of the foot link along the first and second closed loop paths to longitudinal sliding of the respective foot support along the respective foot link.